WHAT IS CLAIMED IS:

1. A process for desulfurizing two hydrocarbonaceous feedstocks which process comprises the following steps:

(a) reacting a first hydrocarbonaceous feedstock comprising hydrocarbon components boiling above about 343°F (650°F) and hydrogen with a desulfurization catalyst in a desulfurization zone operated at desulfurization conditions to produce a desulfurization zone effluent;

(b) introducing the desulfurization zone effluent into a vapor-liquid separator operated at a temperature greater than about 288°C (550°F) to provide a vaporous stream comprising hydrogen, hydrogen sulfide and lower boiling hydrocarbonaceous compounds boiling up to about 371°C (700°F) and a first liquid hydrocarbonaceous stream comprising hydrocarbon components boiling above about 371°C (700°F) and having a reduced concentration of sulfur;

(c) passing the vaporous stream comprising hydrogen, hydrogen sulfide and lower boiling hydrocarbonaceous compounds boiling up to about 371°C (700°F) and a

second hydrocarbonaceous feedstock comprising hydrocarbon components boiling below about 371°C (700°F) to a hydrocracking zone to produce a hydrocracking zone effluent;

(d) passing the hydrocracking zone effluent and a hydrocarbonaceous recycle stream boiling in the range from about 149°C (300°F) to about 371°C (700°F) to a hydrogenation zone to produce a hydrogenation zone effluent;

(e) fractionating the hydrogenation zone effluent to produce an ultra low sulfur hydrocarbonaceous steam boiling in the range from about 149°C (300°F) to about 371°C (700°F); and

(f) fractionating the liquid hydrocarbonaceous steam recovered in step (b) to produce a hydrocarbonaceous recycle stream boiling in the range from about 149°C (300°F) to about 371°C (700°F) and a second liquid hydrocarbonaceous stream comprising hydrocarbon components boiling above about 371°C (700°F) and having a reduced concentration of sulfur.

2. The process of claim 1 wherein the first feedstock is selected from the group consisting essentially of atmospheric gas oil, vacuum gas oil, coker distillates, cracked gas oils and admixtures thereof.

3. The process of claim 1 wherein the operating conditions for the desulfurization zone include a temperature from about 204°C (400°F) to about 482°C (900°F), a pressure from about 2.1 MPa (300 psig) to about 17.3 MPa (2500 psig) and a liquid hourly space velocity from about 0.1 hr^{-1} to about 10 hr^{-1}.

4. The process of claim 1 wherein the operating conditions for the hydrogenation zone include a temperature from about 204°C (400°F) to about 482°C (900°F), a pressure from a bout 2.1 MPa (300 psig) to about 17.3 MPa (2500 psig) and a liquid hourly space velocity from about 0.1 hr^{-1} to about 10 hr^{-1}.

5. The process of claim 1 wherein the ultra low sulfur hydrocarbonaceous stream produced in step (e) contains less than about 50 wppm sulfur.

6. The process of claim 1 wherein the ultra low sulfur hydrocarbonaceous stream produced in step (e) contains less than about 10 wppm sulfur.

7. The process of claim 1 wherein the second feedstock is selected from the group consisting of light cycle oil, straight run middle distillate, kerosene and diesel boiling range hydrocarbons and coker distillate.

8. A process for desulfurizing two hydrocarbonaceous feedstocks which process comprises the following steps:

(a) reacting a first hydrocarbonaceous feedstock selected from the group consisting essentially of atmospheric gas oil, vacuum gas oil, coker distillates, cracked gas oils and admixtures thereof, and hydrogen with a desulfurization catalyst in a desulfurization zone operated at desulfurization conditions to produce a desulfurization zone effluent;

(b) introducing the desulfurization zone effluent into a vapor-liquid separator operated at a temperature greater than about 288°C (550°F) to provide a vaporous stream comprising hydrogen, hydrogen sulfide and lower boiling hydrocarbonaceous compound boiling up to about 371°C (700°F) and a first liquid hydrocarbonaceous stream comprising hydrocarbon components boiling above about

371°C (700°F) and having a reduced concentration of sulfur;

(c) passing the vaporous stream comprising hydrogen, hydrogen sulfide and lower boiling hydrocarbonaceous compounds boiling up to about 371°C (700°F) and a second hydrocarbonaceous feedstock selected from the group consisting of light cycle oil, straight run middle distillate, kerosene and diesel boiling range hydrocarbons and coker distillate to a hydrocracking zone to produce a hydrocracking zone effluent;

(d) passing the hydrocracking zone effluent and a hydrocarbonaceous recycle stream boiling in the range from about 149°C (300°F) to about 371°C (700°F) to a hydrogenation zone to produce a hydrogenation zone effluent;

(e) fractionating the hydrogenation zone effluent to produce an ultra low sulfur hydrocarbonaceous stream boiling in the range from about 149°C (300°F) to about 371°C (700°F); and

(f) fractionating the liquid hydrocarbonaceous stream recovered in step (b) to produce a hydrocarbonaceous

recycle steam boiling in the range from about 149°C (300°F) to about 371°C (700°F) and a second liquid hydrocarbonaceous stream comprising hydrocarbon components boiling above about 371°C (700°F) and having a reduced concentration of sulfur.